

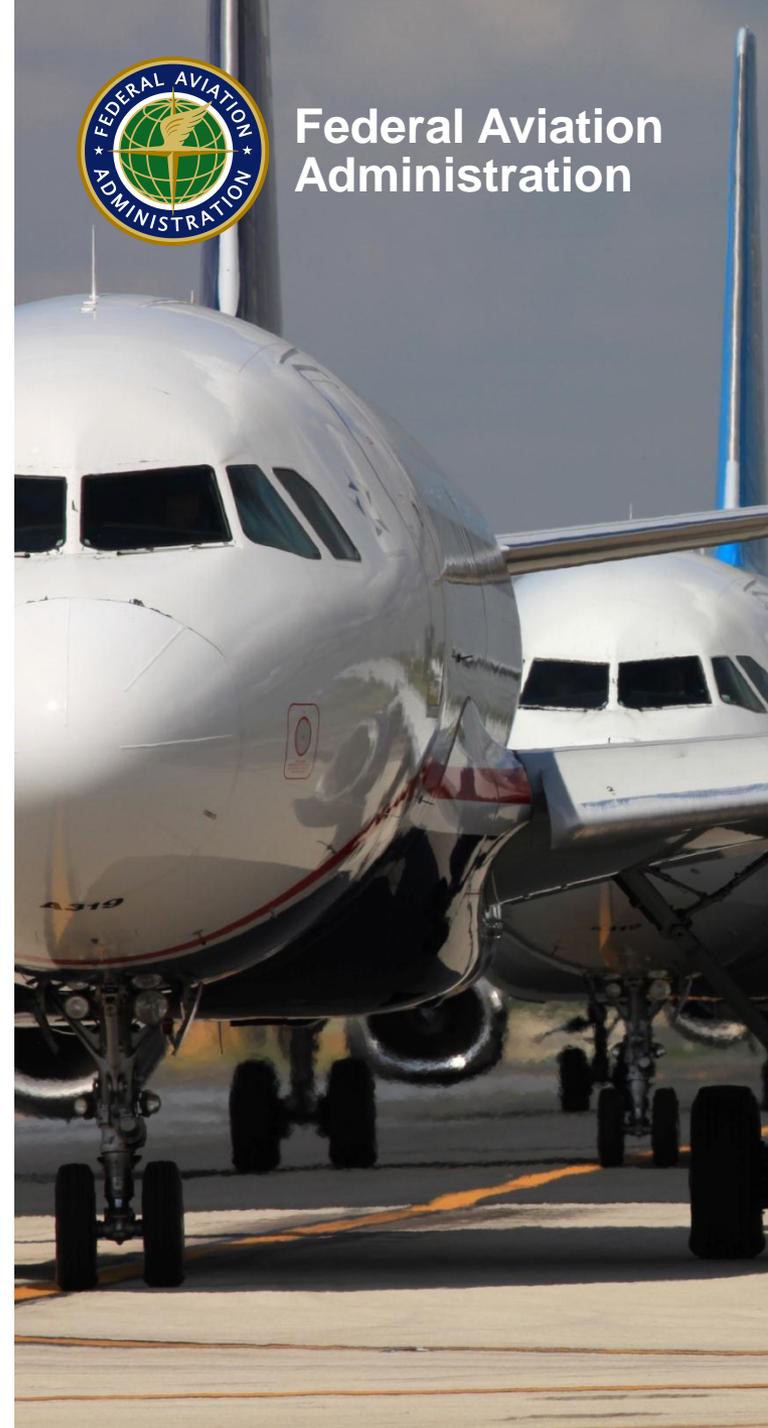
Noise Research

Roadmap and Update

Presented to: E&E REDAC Subcommittee
By: Rebecca Cointin
Date: August 26, 2014



Federal Aviation
Administration



Important Drivers of Research

Even though the number of people in the U.S. exposed to significant aircraft noise since 1975 has dropped by 95 percent, complaints, opposition and challenges regarding aviation noise have not

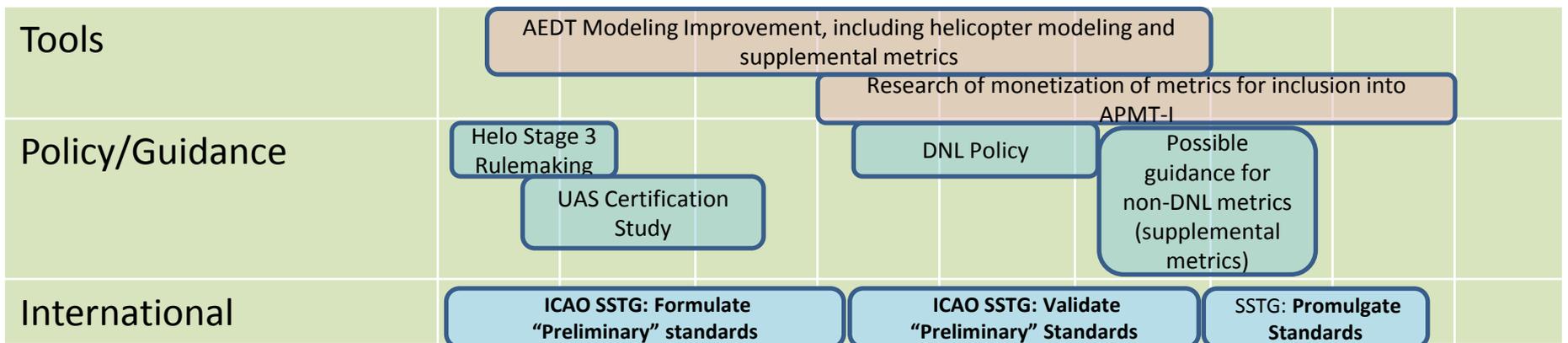
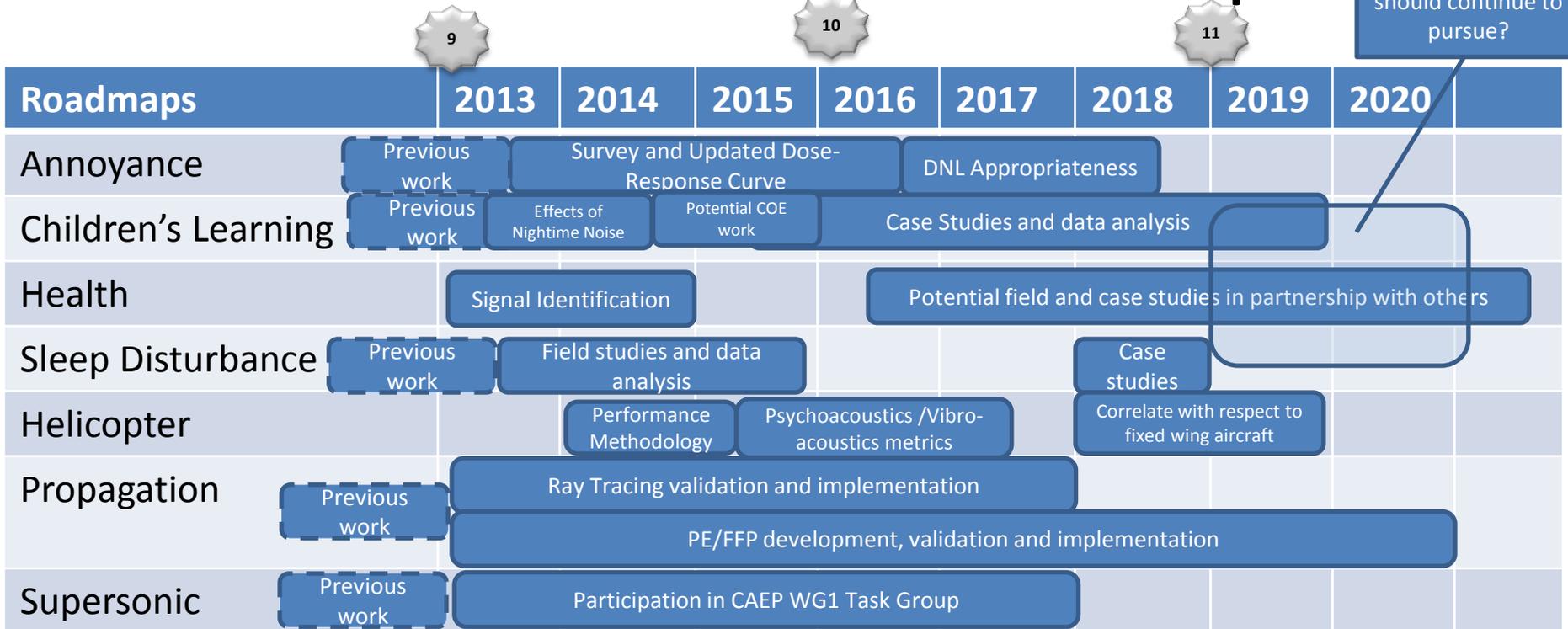
- **Goals**

- Community noise concerns are not a significant constraint on growth
- Reduce the U.S. population exposed to significant aircraft noise around airports
 - By 2018, have the U.S. population exposed to significant aircraft noise around airports have been reduced to less than 300,000 persons



Noise Research Roadmap

Is there a metric besides DNL we should continue to pursue?



Note: Recognizing the unique concerns of aviation noise on National Parks have been requested and the best way to address the need is being considered.

Roadmap Update

- **Working to update the roadmap. Including:**
 - Expand roadmap to include UAS and Commercial Space
 - Gather stakeholders to discuss research direction of certain aspects of the roadmap
 - Add key decision points and ensure that key transition points are captured
 - Add budget to the items within the roadmap to understand if funds are available.
 - Show how roadmap aligns with DOD, NASA, etc. efforts such that all agencies are recognized on it.
 - As possible, show how information is being passed from various steps.



Noise Research – Nearer Term

ACTIVE AREAS OF RESEARCH

Helicopter
Noise

UAS
Certification

Measurement
Standards

Certification
Delegation

Noise Source
and Propagation

PBN

Noise in Quiet
Areas

Supersonic
Aircraft

Noise Level Reduction

IMPACTS

Annoyance
(aircraft) – DNL

Commercial
Space

Children's
Learning

Health
Impact

Sleep
Disturbance

Annoyance -
Helicopter



Noise Research – Far Term (potential)

- **Multi-modal noise**
- **Broader understanding of ambient conditions around airports**
- **Very Light Jets**
 - Modeling
 - Impacts
- **Simulation Noise Modeling**
- **Future Aircraft Configuration**
- **New Noise Technologies**
- **Impacts of future certification stringencies**
- **Evolution of noise measurement equipment and certification schemes**



AIRPORT NOISE SURVEY



National Survey

- To conduct a new nation- wide survey to update the scientific evidence of the relationship between aircraft noise exposure and its effects on communities around airports
- National survey will be completed at 20 airports, which represent all airports in the nation based on statistical approach
 - Four critical airports identified to be included due to number of people exposed to aviation noise around those airports and the number of operations at those airports
- The 20 airports represent:
 - 50% of people exposed to DNL 65 dB
 - 39% of people exposed to DNL 55 dB
- AEE will coordinate with you before the names of the airports are released



Airport Selection

- **Balanced probability sampling was used to determine the 16 airports**
- **Factors for balanced probability sampling**
 - Number of daily jet operations - Explore number of operations
 - Percent of daily nighttime operation - Nighttime annoyance concerns
 - Number of people living within 5 mile radius of the airport - Surrogate for rural/urban/suburban attribute of airport
 - Airport average weather conditions - Account for windows open/close potential
 - Fleet mix at the airport - Explore jet/propeller differences
 - FAA region - Geographical Scope



Survey Details

- **Questionnaires**

- Will be reviewed as part of OMB Process, not yet released
- Developed by internationally recognized experts in annoyance questionnaire development and reviewed by expert panel
- Two developed
 - Short version for mail survey concentrating on dose-response
 - Asks how a number of environmental factors disturb or annoy with aircraft being one
 - Longer version for telephone interview developed to obtain further information about attitudes towards airports and airport policies to help inform why people may be answering the annoyance question the way they are



Survey Details

- **Survey Method**

- Survey people around airports in 5 dB bands from DNL 50 – 70 dB
- 500 completed mail surveys around each airport (100 in each band)
- Will resample the mail surveys to interview 107 people around each airport by phone (21 – 22 in each band)
- Compensation is provided
 - \$2.00 for mail survey
 - \$10.00 at the completion of the phone survey

- **Data Analysis**

- Create dose-response curve (DNL vs Annoyance)



Schedule

- **PRA Federal Register Notice (FRN) – June 2014**
- **Briefed Stakeholders – July 2014**
- **Close of PRA FRN – August 2014**
- **Address Comments from PRA FRN – August 2014**
- **Submit package to OMB – September 2014**
 - 30-day FRN happens concurrently
- **OMB approval – November 2014**
- **Start surveys – January 2015**
- **Finish surveys – January 2016**
- **Data analysis completed – mid-2016**
- **FAA briefs survey results to interested parties – mid to late 2016**
- **FAA reviews dose-response curve and determines needed policy or guidance – mid-2016 to early 2017**



Discussion

- **Aviation Noise is getting a lot of attention**
 - Areas we didn't foresee as such a high priority are being prioritized higher due to circumstances
- **Many noise projects are being undertaken this year**
 - Provides resource challenges
- **FAA Research Roadmap provides clear direction of where AEE plans to take aviation noise research**
 - Roadmap will be updated periodically to reflect changing priorities, funding picture, and needs

